

PUBLIC VERSION

**UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.**

In the Matter of

**CERTAIN HIGH-BRIGHTNESS LIGHT
EMITTING DIODES AND PRODUCTS
CONTAINING SAME**

Investigation No. 337-TA-556

RECEIVED
OFC OF THE SECRETARY
US INTL TRADE COMMISSION
2007 MAY 30 PM 3:23

**COMMISSION OPINION ON VIOLATION, REMEDY, THE PUBLIC
INTEREST, AND BONDING**

I. BACKGROUND

The Commission instituted this investigation on December 8, 2005, based on a complaint filed by Lumileds Lighting U.S., LLC (“Lumileds”) of San Jose, California. 70 *Fed. Reg.* 73026. The complaint, as amended and supplemented, alleges violations of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain high-brightness light emitting diodes (“LEDs”) and products containing same by reason of infringement of claims 1 and 6 of U.S. Patent No. 5,008,718 (“the ‘718 patent”), claims 1-3, 8-9, 16, 18, and 23-28 of U.S. Patent No. 5,376,580 (“the ‘580 patent”), and claims 12-16 of U.S. Patent No. 5,502,316 (“the ‘316 patent”). The complaint further alleges the existence of a domestic industry. The Commission’s notice of investigation named Epistar Corporation (“Epistar”) of Hsinchu,

Taiwan, and United Epitaxy Company (“UEC”) of Hsinchu, Taiwan as respondents.

On April 28, 2006, Lumileds moved to amend the complaint to: 1) remove UEC as a named respondent since it had merged with Epistar, 2) change the complainant’s full name from Lumileds Lighting U.S., LLC to Philips Lumileds Lighting Company LLC (“Philips”) since it had undergone a name change, and 3) identify additional Epistar LEDs alleged to infringe one or more patents-in-suit. Neither respondent opposed the motion, and on May 10, 2006, the Commission Investigative Attorney (“IA”) filed a response in support of Lumileds’ motion. Philips also moved to amend the asserted claims against the respondent Epistar.

On May 15, 2006, the Commission determined not to review an ID granting the complainant’s motion for partial summary determination to dismiss Epistar’s affirmative defense that the ‘718 claims are invalid.

On July 31, 2006, the presiding administrative law judge (“ALJ”), issued Order No. 27 construing most of the disputed claims of the three patents-in-suit.

On August 2, 2006, the ALJ and the parties discussed the still pending motion to amend the complaint during the prehearing conference. The evidentiary hearing followed and continued through August 11, 2006. On October 23, 2006, the ALJ issued an ID (Order No. 29) granting Lumileds’ motion to amend the complaint, and further ordering that the Notice of Investigation be amended to identify Philips as the complainant and to remove UEC as a named respondent. On November 13, 2006, the Commission published a notice determining not to review Order No. 29. 71 *Fed. Reg.* 66195.

On January 8 and 11, 2007, the ALJ issued his final ID and recommended determinations on remedy and bonding, respectively. The ALJ found a violation of section 337 based on his findings that some of the respondent's accused products infringe claims 1 and 6 of the '718 patent. Other products were found not to infringe any of the patents at issue. The ALJ's final ID incorporates the claim constructions he made in Order No. 27. See ID at 5.

On January 22, 2007, the complainant and the respondent each filed a petition for review of the final ID. On January 29, 2007, all parties filed responses to the petitions for review. On February 22, 2007, the Commission determined to review-in-part the ID. Particularly, the Commission determined to review the ALJ's construction of the claim terms "substrate" and "semiconductor substrate" in claims 1 and 6 of the '718 patent, and claim construction of the claim term "wafer bonding" in claims 1-3, 8-9, 16, 18, 23-25, 27, and 28 of the '580 patent and claims 12-14 and 16 of the '316 patent.

On review, with respect to violation, the parties were requested to submit briefing limited to the following issues: the ALJ's apparent addition of the limitation "must also be a material that provides adequate mechanical support for the LED device" to the construction of the term "substrate," and the implications of this addition for the infringement analysis.

In addition, the Commission requested written submissions from the parties relating to the appropriate remedy, whether the statutory public interest factors preclude issuance of that remedy, and the amount of bond to be imposed during the period of Presidential review.

On March 5 and March 12, 2007, the complainant Philips, the respondent Epistar, and the IA filed briefs and reply briefs, respectively, on the issues for which the Commission requested written submissions.

A. Patents at Issue

This investigation pertains to high-brightness light emitting diodes (LEDs), which are made from semiconductor materials and may be used in a variety of products (*e.g.*, cellphones, traffic signals, indoor/outdoor displays and signs, etc.). In particular, the asserted '718, '580, and '316 patents pertain to aspects of semiconductor manufacturing processes to produce LEDs with higher light output and improved efficiency.

The '718 patent is entitled "Light-Emitting Diode with an Electrically Conductive Window" and is directed to an LED with a special transparent window layer grown on top of the active LED layers of the semiconductor device in order to enhance current spreading (less light absorption) and thereby provide a higher light output and improved LED efficiency. The '718 patent is based on an application filed on December 18, 1989. The patent issued on April 16, 1999 to Robert M. Fletcher, *et al.*, and it was originally assigned to Hewlett-Packard Company ("HP"). Subsequently, the '718 patent was assigned to Agilent Technologies, Inc. ("Agilent"), and finally to the complainant Philips (then Lumileds). See Amended Complaint at 7, Exhibit 4 to Original Complaint.

The '580 patent is entitled "Wafer Bonding of Light Emitting Diode Layers" and is directed to a method of forming an LED which includes wafer bonding LED layers grown on top of a temporary growth substrate to a special second substrate to enhance optical transparency and thereby provide a higher light output and improve LED efficiency. The '580 patent is based on an application filed on March 19, 1993. The

‘580 patent issued on December 27, 1994, to Fred A. Kish, *et al.*, and was originally assigned to HP. Subsequently, the ‘580 patent was assigned to Agilent, and finally to the complainant Philips. See Amended Complaint at 7, Exh. 5 to Original Complaint.

The ‘316 patent is also entitled “Wafer Bonding of Light Emitting Diode Layers” and is also directed to an LED semiconductor device that is made by LED layers grown on top of a temporary growth substrate and bonded to a special second substrate to enhance optical transparency and thereby provide a higher light output and improve LED efficiency. The ‘316 patent is based on an application filed on October 12, 1995. The patent issued on March 26, 1996, to Fred A. Kish, *et al.*, and it was originally assigned to HP. Subsequently, the ‘316 patent was assigned to Agilent, and finally to the complainant Philips. See Amended Complaint at 9, Exh. 6 to Original Complaint.

B. Processes and Devices at Issue

Generally, Philips contends that at least claims 1 and 6 of the ‘718 patent, claims 1-3, 8-9, 16, 18, and 23-25, 27, and 28 of the ‘580 patent, and claims 12-14 and 16 of the ‘316 patent are infringed, either literally or under the doctrine of equivalents, by the following types of LEDs, *viz.*, OMA, OMA II, MB, MB II, GB, and GB II,¹ that Epistar

1

OMA refers to Epistar’s mirrored-substrate AlGaInP LED products which use an active LED layer of at least AlGaInP coupled to a lower reflective layer (e.g., [] mirror) through wafer bonding and a higher transparent, current-spreading ITO layer to enhance LED efficiency with higher light output. An AlGaInP LED refers to an LED that uses an active layer of semiconductor comprised of at least a combination of aluminum, gallium, indium, and phosphorus. An ITO LED refers to an LED that uses a current-spreading layer of indium-tin oxide to enhance LED efficiency with higher light output. The designation OMA II refers to a second-generation of OMA products that Epistar is developing. See Amended Complaint at 18-20.

MB and GB refer to Epistar’s “metal bond” and “glue bond” LEDs which use an active LED layer of at least AlGaInP coupled to a higher transparent, current-spreading ITO layer to enhance LED efficiency with higher light output. The AlGaInP layer is coupled to a lower reflective metal bonding layer through wafer bonding for the MB products and to a lower transparent organic adhesive (glue layer) for the GB products. The designations MB II and GB II refers to a second-generation of MB and GB products, respectively, that

either currently produces or is in the process of developing. Philips asserts that Epistar's OMA LEDs infringe at least claims 1 and 6 of the '718 patent, claims 1-3, 16, and 18 of the '580 patent, and claims 12-14, and 16 of the '316 patent. Philips asserts that Epistar's MB LEDs infringe at least claims 1 and 6 of the '718 patent, and claims 8-9, 16, and 18 of the '580 patent. Philips asserts that Epistar's GB LEDs infringe at least claims 1 and 6 of the '718 patent, claims 1-3, 23-25, and 27-28 of the '580 patent, and claims 12-14 and 16 of the '316 patent.

With regard to its own products, Philips asserts that its AlGaInP LEDs practice the asserted claims as their LEDs include both the current-spreading ("p-GaP" - gallium phosphorus) window layer disclosed in the preferred embodiment of the '718 patent, and the wafer-bonded transparent substrate ("n-GaP") disclosed as a preferred embodiment of the '580 and '316 patents. See Amended Complaint at 28.

C. Relevant Prior Litigation and Merger

From September 1999 through September 2001, Philips asserted the '718 patent against UEC. *See United Epitaxy Co., Ltd. v. Hewlett-Packard Co., Agilent Technologies, Inc., and Lumileds Lighting U.S., LLC*, No. C 00-2518 CW (PVT) (ND. Cal. filed September 7, 1999) ("Prior UEC litigation"). In that litigation, Philips specifically asserted the '718 patent against Epistar's absorbing-substrate LEDs (the LED having a lower light absorbing substrate wafer-bonded to the LED active layers). On August 30, 2001, Philips and UEC settled the litigation by negotiating and executing a Settlement Agreement and Mutual Release ("Settlement Agreement"), Stipulated

Epistar is developing. See Amended Complaint at 20-23.

Consent Judgment, and License Agreement. See Exhs. 8-10 of Complainant's Motion for Partial Summary Determination to Dismiss Epistar's Affirmative Defense that the '718 Patent Claims are Invalid.

[

].

Also, from January 2003 through July 2004, Philips asserted the '718 patent against Epistar in district court. *See Lumileds Lighting U.S., LLC v. Epistar Corp.*, No. C 02-5077 CW (PVT) (N.D. Cal.) ("Prior Epistar litigation"). In that litigation, Philips specifically asserted the '718 patent against Epistar's [] LEDs. On approximately July 12, 2004, Philips and Epistar settled the litigation by negotiating and executing a Stipulated Dismissal with Prejudice Agreement, and a settlement and license

agreement. See Exh. 11 of Complainant's Motion for Partial Summary Determination to Dismiss Epistar's Affirmative Defense that the '718 Patent Claims are Invalid. [

].

Also, on December 30, 2005, UEC and Epistar completed a merger of the two companies. As part of the merger agreement, Epistar, as the surviving company, assumed "all assets, debts, rights, and obligations" previously held by UEC as of the date of the merger where these rights and obligations include those relating to patents and contracts, as well as UEC's status as a party to this investigation. See Exh. 3 of Complainant's Motion for Partial Summary Determination to Dismiss Epistar's Affirmative Defense that the '718 Patent Claims are Invalid.

Due to these prior agreements and stipulations between Philips and UEC/Epistar along with the UEC-Epistar merger agreement, the ALJ granted Philips' motion for partial summary determination to dismiss Epistar's Affirmative Defense that the '718 patent claims are invalid and Philips' motion to amend the complaint. See Orders 14, 29. Further, the ALJ determined in his final ID that Epistar's products at issue are not subject to the previous licenses between Philips and UEC/Epistar (more details below).

II. DISCUSSION

For the reasons set forth below, we have determined to reverse-in-part and modify-in-part the subject ID finding a violation of section 337 by Epistar's MB I and MB II LEDs.

A. Claim Construction

“substrate” and “semiconductor substrate”

We determined to review the construction of the terms “substrate” and “semiconductor substrate” in claims 1 and 6 of the '718 patent. '718 patent, col. 5, ll. 33-44. The ALJ originally construed “substrate” to be “the supporting material in an LED upon which the other layers of an LED are grown or to which those layers are attached”. See Order No. 27 at 10-14, ID at 34-35. Particularly, in Order No. 27, the ALJ noted that the definition for “substrate” must include a preferred embodiment disclosed in the '718 specification which described a substrate embodiment where the substrate is grown on top of the other layers (*e.g.*, active layers of the LED). See Order No. 27 at 12-13. Thus, the ALJ construed the term to “include the case in which the layer functioning as the substrate is grown on top of, or attached to, the other layers.” *Id.* In the subject ID, however, the ALJ supplemented his earlier construction to add that the substrate “must also be a material that provides adequate mechanical support for the LED device.” See ID at 35.

During his infringement analysis, the ALJ did not apply the construction of “substrate” that he made in Order No. 27, *i.e.*, a construction that specifically includes a substrate that is grown on top of the other layers of the LED. Particularly, the ALJ stated the following in finding that Epistar's GB and OMA family of LEDs did not infringe the '718 patent:

The Administrative Law Judge finds that the [] layer identified by Dr. Dupuis as a 'substrate' is not a layer upon which the other layers of the GB are grown or to which they are attached. While it is true that some layers are formed on or attached to the [] layer, it is also true that the [] layer is actually grown on top of the epitaxial light-emitting layers. Thus, the Administrative Law Judge concludes that the [] epitaxial layer is not a 'substrate' as construed in Order No. 27 . . . RX-181C shows that the manufacturing process of the GB II product, in relevant part, is approximately the same as described for the GB. For example, the [] layers are once again grown on top of the active layers and the [] layer is deposited on top the []. It is also apparent that the thick layer of sapphire functions as the 'substrate' for the GB II and that all the other layers are either made on top of that layer or attached to it. There is no argument that sapphire is a semiconductor; therefore, there is agreement that it is not. Accordingly, the Administrative Law Judge finds that the GB and GB II products do not literally have a semiconductor substrate.

* * *

The Administrative Law Judge, however, concludes once again that the multiple layers identified by Dr. Dupuis as the 'semiconductor substrate' in the OMA and OMA II devices do not actually satisfy that limitation as construed in Order No. 27. In this case, the layers identified by Dr. Dupuis in both the OMA LEDs are not the layers upon which the layers of the OMA device are grown or to which they are attached because the [] layers are actually grown upon the active layers. In the OMA II device, Dr. Dupuis has identified the same layers as the 'semiconductor substrate' . . . According to the Staff 'the OMA and OMA II products rely upon the lowermost layer of silicon to provide support for the LED components' and the Administrative Law Judge agrees. The layers of silicon are also those upon which the layers of OMA and OMA II are grown or to which they are attached. Thus, the Administrative Law Judge concludes that the silicon layer in the OMA and OMA II device meets the requirements of a 'semiconductor substrate' as construed in Order No. 27.

See ID at 57-58, 67-68.

Also, it does not appear that the ALJ expressly construed the specific claim term “semiconductor substrate” as used in the first line of the body of claim 1 of the ‘718 patent, but instead separately construed “substrate” as described above and “semiconductor” as “a non-metallic solid that conducts electricity by virtue of excitation of electrons across an energy gap, or by introduced materials, such as dopants, that provide conduction electrons.” See Order No. 27 at 11-12, 19-22. However, this construction of “semiconductor” refers solely to the use of the term in another portion of claim 1 to describe the transparent window layer, “a transparent window layer of semiconductor different from AlGaInP”. See Order No. 27 at 20. During his infringement analysis of the GB and OMA family of LEDs in the ID, it appears that the ALJ construed “semiconductor substrate” to be a single-layer substrate composed of semiconductor materials similar to his “semiconductor” construction (*i.e.*, a good electrical conductor material) because he determined that a sapphire substrate (*i.e.*, a good insulator) could not be viewed as a semiconductor substrate. ID at 58-62.

We agree with Philips’ that the ALJ improperly added the limitation of “providing adequate mechanical support” to his “substrate” construction by placing undue emphasis on one of the disclosed embodiments, contrary to established Federal Circuit precedent. See *Ventana Medical System, Inc. v. Biogenex Laboratories, Inc.*, 473 F.3d 1173, 1180-2 (Fed. Cir. 2006) (finding that the mere fact that embodiments included a particular example does not limit claims to that example); see also *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (claim need not be limited to single embodiment disclosed in the specification); see also *Cordis Corp. v. Medtronic AVE*,

Inc., 339 F.3d 1352, 1365 (Fed. Cir. 2003) (“As our case law makes clear, however, ‘an applicant is not required to describe in the specification every conceivable and possible future embodiment of his invention.’”). We disagree with Epistar’s and the IA’s contention that the added limitation is merely a clarification of the ALJ’s original “substrate” construction.

Particularly, the ALJ appeared to place undue emphasis on the second disclosed embodiment of “substrate” in the ‘718 patent which states that “[t]he GaP layer is also grown much thicker than the active layers to provide a desired mechanical strength for the completed device...[t]he relatively thick GaP layer which provides mechanical strength as a transparent ‘substrate’”. See ID at 34-35; the ‘718 patent, col. 5, ll. 1-9. However, these limitations are directed only to this second disclosed embodiment (Fig. 3). The first disclosed embodiment generally refers only to a GaAs (gallium arsenide) substrate having a magnitude of thickness greater than the active layers of the device (*e.g.*, micrometers vs. nanometers). *Id.* at col. 2, ll. 60-64. Therefore, we find that the ALJ’s original “substrate” definition as “the supporting material in an LED upon which the other layers of an LED are grown or to which these layers are attached” covers these two disclosed embodiments without importing any limitations into the claim.

Therefore, after reviewing the ‘718 specification, we determine that the ALJ properly construed the term “substrate” in Order No. 27 to be “the supporting material in an LED upon which the other layers of an LED are grown or to which those layers are attached” which includes the disclosed embodiment of a substrate that is grown on top of, or attached to, the other (LED) layers. See Order No. 27 at 13-14.

Furthermore, we find that the ALJ's construction of "semiconductor substrate" is too limiting because we find that this term may include multiple layers (elements), at least one of which must be a semiconductor material. The '718 specification does not mention the specific term "semiconductor substrate", nor does it contain any disclaimer limiting a "substrate" to a single layer. Rather, the LED structure depicted is described as exemplary, and therefore we view the semiconductor substrate helping to form the LED structure as exemplary as well. See '718 patent, col. 2, ll. 48-49. Additionally, the ALJ in his ID expressly notes that composite substrates, *i.e.*, composition of layers, may be considered the "substrate" to satisfy the asserted claims of the patents-at-issue which specifically includes a semiconductor material (silicon) on an insulator embodiment. See ID at 130. Therefore, we do not view the specification as limiting the term "semiconductor substrate" to a single layer.

Accordingly, the Commission has determined to modify the ALJ's construction of the claim terms "substrate" and "semiconductor substrate" found in claims 1 and 6 of the '718 patent. Particularly, the Commission finds the correct construction of the term "substrate" to be "the supporting material in an LED upon which the other layers of an LED are grown or to which those layers are attached" and to include the case in which the supporting material functioning as the substrate is grown on top of, or attached to, the other layers. Also, we modify the ALJ's construction of the term "semiconductor substrate" to be the above-stated "substrate" construction where additionally "at least one layer of the supporting material functioning as the substrate includes a non-metallic solid that conducts electricity by virtue of excitation of electrons across an energy gap, or by

introduced materials, such as dopants, that provide conduction electrons.” See Order No. 27 at 22.

“wafer bonding”

We also determined to review the ALJ’s construction of the term “wafer bonding” in claims 1-3, 8-9, 16, 18, 23-25, 27, and 28 of the ‘580 patent and claims 12-14 and 16 of the ‘316 patent. ‘580 patent, col. 16, ll. 36-49; col. 17, ll. 13-3; col. 18, ll. 12-28; ‘316 patent, col. 16, ll. 43-53. The ALJ deferred construction of the term “wafer bonding” until trial to allow presentation of additional evidence. See Order No. 27 at 56. Upon presentation of this additional evidence, which primarily consists of expert testimony, prior art references, and Epistar product sheets, the ALJ construed “wafer bonding” to be “the bringing of two wafer surfaces into physical contact such that a mechanically robust bond forms between them.” See ID at 19. Additionally, the ALJ determined that “wafer bonding” is not strictly limited to semiconductors, but may also include glass or mirror bonding, but does not include Van der Waals bonding, metal-to-metal bonding, and glue bonding.²

Having reviewed the record, we find that the ALJ improperly limited “wafer bonding” to exclude metal-to-metal bonding or glue bonding. Instead of focusing on the particular physical composition of the layer(s) that are wafer bonded, the ALJ should have read the intrinsic evidence to determine that the critical feature of the “wafer bond” is the creation of an interface that is largely optically transparent to enhance the light output and efficiency of the LED. See ‘580 patent, col. 9, ll. 19-22.

²

Van der Waals bonding is expressly disclaimed in the patents. See ‘580 patent, col. 13, ll. 9-16; see ‘316 patent, col. 12, ll. 43-50.

The ALJ points to portions of the ‘316 prosecution history (the ‘316 patent issued from a division of the application that issued as the ‘580 patent) as support for a finding that the inventors disclaimed metal-to-metal bonding as wafer bonding. However, we find that the entire relevant portion of the applicants’ responses to the claim rejections indicates otherwise. See ID at 13, 18; citing CX-36 (LLITC 00000204, 405-406) (responses to Office Actions). Although these two office action responses expressly disclaim metal-to-metal (wafer) bonds that result in an optically absorbing (opaque) bond, they do not disclaim metal-to-metal bonds that result in an optically transparent wafer bond. Moreover, the applicants continually referred to this critical aspect of their invention (optical transparency) as being distinct over the relevant prior art cited, Jokerst et al. (U.S. Patent No. 5,280,184). Furthermore, the ALJ focused on nomenclature rather than bond properties in viewing metal as distinct from a mirror even though he acknowledged that mirror-semiconductor wafer bonding was included in his construction. See ID at 17. Regardless of whether one of the bonding layers is identified as a mirror or a metal, we find that the specification discloses that one of the critical inventive features is whether a largely optically transparent interface is created via wafer bonding. See the ‘580 patent, col. 9, ll. 19-22.

Similarly, we find that the ALJ erred when he excluded glue bonding from his construction of the term wafer bonding. Although the ALJ recognized that the ‘580 patent specification discloses that wafer bonding includes glass-semiconductor interfaces, he dismissed Philips’ argument that glue-semiconductor interfaces were also included in the “wafer bonding” definition because glass was used as a glue in one embodiment disclosed in the ‘580 specification. See the ‘580 patent, col. 9, ll. 3-26; ID at 15. The

ALJ also dismissed Philips' argument since he viewed glass as distinct from glue and therefore excluded glue bonding from his construction. *Id.* Again, we find that the ALJ focused too much on labels and nomenclature and should have focused more on the properties of the interface formed by the wafer bond in construing the term. Contrary to the ALJ, we find that, regardless of whether one of the bonding layers is identified as a glue or glass layer, the critical inventive feature is present when a largely optically transparent interface is created via wafer bonding. *Id.*

Therefore, we have determined that the ALJ improperly excluded all forms of metal-to-metal and glue bonding from his construction of "wafer bonding". See ID at 19-20. Rather, we have determined that the correct construction of the term excludes only metal or glue bonds that produce an optically absorbing bond. Or in other words, the proper construction of "wafer bonding" is "the bringing of two wafer surfaces into physical contact such that a mechanically robust, *largely optically transparent* bond forms between them, and does not include Van der Waals bonding."

However, our modification of the ALJ's claim construction of "wafer bonding" in claims 1-3, 8-9, 16, 18, 23-25, 27, and 28 of the '580 patent and claims 12-14 and 16 of the '316 patent does not change the ALJ's finding of non-infringement of the '316 or '580 patents.

B. Infringement of the '718 Patent

1. The '718 Patent

The “substrate” limitation

The ALJ determined that Epistar’s GB and OMA family of LEDs do not infringe claims 1 or 6 of the ‘718 patent, either literally or under the doctrine of equivalents. See ID at 64-65, 70-71. The ALJ’s determination of non-infringement was based on his finding that neither of these products includes the claimed “substrate” element as he construed it in his ID. See ID at 53-62, 65-69. The ALJ reviewed the detailed structures of each accused LED to make his determinations. See ID at 53, 65; RX-180C, 181C; RDX-500-505.

The ALJ found that Epistar’s GB I LED is formed by initially preparing a temporary [] substrate which is subsequently removed after further steps in the manufacturing process. After this temporary substrate is formed, the following steps occur: [

].

GB II follows a manufacturing process similar to that of GB I and further includes: [

]. For both GB I and GB II, [

]. Also, the OMA I and OMA II LED's are similarly structured to GB II with the following differences: [

].

After reviewing the accused LED structures, the ALJ determined that the only element of the GB and OMA family of LEDs that satisfied his "substrate" construction was the bottom-level sapphire or Si substrates, as these substrates provided the significant portion of the mechanical support for the active layers of the LEDs. The ALJ reasoned that only the bottom-level sapphire or Si substrates were of sufficient thickness to be "the supporting material in an LED upon which the other layers of an LED are grown or to which they are attached" to satisfy his additional limitation of "providing adequate mechanical support for an LED device". See ID at 53-62, 65-69. The ALJ also determined that the other layers beneath the active layers (*e.g.*, [] layers) do not provide adequate mechanical support for the LED device, because Philips

did not provide sufficient evidence to prove that these layers in the respondent's products possess sufficient thickness to provide such support. The ALJ further determined that sapphire was not a semiconductor substrate because sapphire is an insulator. See ID at 58. Since neither substrate was connected to a bonding pad (electrode), the ALJ determined that neither family of LEDs infringed claims 1 or 6 of the '718 patent. Also, as referenced above, the ALJ found that because the substrate layers (*e.g.*, [] layers) in the accused LEDs are actually grown on top of the active LED layers, they did not meet his construction of the term "substrate", which he had limited to the layers upon which the LED layers are grown. See ID at 57-58, 67-69.

As discussed above, the Commission has determined that the ALJ correctly construed "substrate" in his Order No. 27 as "the supporting material in an LED upon which the other layers of an LED are grown or to which these layers are attached," a construction that properly included the disclosed embodiment of the '718 specification which described a "layer functioning as the substrate that is grown on top of, or attached to, the other layers." See Order No. 27 at 12-14.

During the infringement analysis, however, the ALJ did not apply this correct construction but rather applied his modified construction that added the limitation "provides adequate mechanical support" to his previous construction for the term "substrate". Moreover, the ALJ viewed "the supporting material" in his modified construction of "substrate" to be limited to only one layer (element), excluding one or more layers (combination of layers or elements) even though a "multiple layers" limitation is not excluded by the intrinsic evidence. Finally, the ALJ incorrectly found that a layer or layers formed after the active layers was not a substrate.

Under either the correct claim construction of Order No. 27 or the ALJ's modified construction in his ID, we find that "the supporting material" which functions as the substrate may properly include a combination of layers (multiple layers) that support the active LED layers above it, as is the case with Epistar's GB and OMA family of LEDs. While the '718 patent generally describes LED embodiments where the layer functioning as the substrate lies below the active layers of the LED device to provide support for the entire structure (Figs. 1-3), there is no express or implied disclaimer in the patent that necessarily limits the substrate to being comprised of a single layer (element). Furthermore, our construction of "supporting material" is not contrary to the purpose of the invention which is to produce an LED structure with a transparent window layer to promote current spreading leading to higher light output and greater LED efficiency.

Our construction is also consistent with the Federal Circuit's established precedent holding that the disclosure of a preferred or exemplary embodiment encompassing a singular element does not disclaim a plural embodiment when there is no limitation in the claim language or the prosecution history. *See KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000); *see also AbTox, Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023 (Fed. Cir. 1997). Therefore, under established precedent, the term "a semiconductor substrate" may clearly include one or more semiconductor substrates. In this case, we find that a necessary corollary determination is that one or more substrates may include one or more layers to function as the "supporting material" for the active LED layers.

In addition, the Federal Circuit has consistently held that when the claim language calls for further inquiry to define a claim term, the tribunal must consult the specification

to determine whether clear intent exists to limit the invention to a singular embodiment. *See KCJ Corp.*, 223 F.3d at 1356. In reviewing the '718 specification, we find no clear intent to exclude a substrate comprising one or more layers because the disclosed LEDs are exemplary, and we view the underlying substrates that contribute to the LED structure as exemplary as well. See the '718 patent, col. 2, ll. 48-49. Specifically, the specification states that "[a]n exemplary light emitting diode (LED) constructed according to principles of this invention has an n-type substrate 20 of GaAs." *Id.* Therefore, consistent with established patent law, it is our view that "the supporting material in an LED" may necessarily include one or more layers because the intrinsic evidence does not exclude an interpretation of the term that includes "multiple layers".

Additionally, the extrinsic evidence, if consulted, leads to the same conclusion. A number of references, mostly cited in Philips' petition for review, disclose substrates that are comprised of a combination of layers (multiple layers or elements). See Philips br. at 49-50; citing CX-70 and CX-632; U.S. Patent No. 6,677,617; www.semiconductor-technology.com/glossary/substrate.html. Also, we note that the ALJ specifically recognized that Philips originally asserted that a construction of "substrate" as "an underlying layer" was overly broad since it would include nearly every layer of the LED structure. See Order No. 27 at 13. The ALJ's concern that a "substrate" layer would be confused with "confining" or "active" layers of the LED device is not relevant here because the [] layers are clearly distinct from the confining and active layers of the GB and OMA family of LEDs.

As mentioned above, the ALJ found that the term "semiconductor substrate" also was not satisfied by the combination of supporting materials underlying the active layers

of the LED for Epistar's GB and OMA LEDs. Again, although not expressly construed by the ALJ in his claim construction order (Order No. 27), we find "semiconductor substrate" to be properly construed as the above-mentioned "substrate" construction where additionally "at least one layer of the supporting material functioning as the substrate includes a non-metallic solid that conducts electricity by virtue of excitation of electrons across an energy gap, or by introduced materials, such as dopants, that provide conduction electrons." See Order No. 27 at 22.

In view of our construction that the claim term "substrate" need not be formed of a single layer, it follows necessarily that the term "supporting material" used in the ALJ's construction may include multiple layers which function as the substrate. Particularly, we find that the [] contact layers present in the GB and OMA family of LEDs, in combination with the thicker Si and sapphire bottom layers and any intervening layers, is a "composite substrate" that is "the supporting material" for the active LED layers above it so as to satisfy the "substrate" limitation under either the ALJ's original or supplemented claim construction. Thus, we find that this composite substrate also provides the adequate mechanical support for the LED device that is required by the ALJ's construction of the "substrate" limitation in his ID.

Accordingly, under either the ALJ's original or modified construction of the term "substrate", and our construction of "semiconductor substrate" discussed above, we find that Epistar's family of GB and OMA LEDs literally infringes claims 1 and 6 because of the following: 1) the combination of the [] layers, together with the Si or Sapphire bottom layers and any intervening layers, forms a "composite substrate" to satisfy the claimed "semiconductor substrate" element, 2) the []

] layer, one of the multiple layers of the composite substrate, contacts a metal bonding pad to provide “an electrical contact to the substrate” that satisfies this claimed element, and 3) the upper ITO contact layer performs current spreading and contacts another metal bonding pad to satisfy the other claimed elements.

For the reasons set forth above, we have determined that Epistar’s family of GB and OMA LEDs literally infringes claims 1 and 6 of the ‘718 patent. Since the evidence supports a finding of literal infringement, we do not reach the issue of infringement under the doctrine of equivalents.

Accordingly, the Commission reverses the ALJ’s finding of non-infringement of claims 1 and 6 of the ‘718 patent by Epistar’s family of GB and OMA LED devices.

III. REMEDY, PUBLIC INTEREST, AND BONDING

For the reasons set forth below, we have determined to accept the ALJ’s recommended determination (RD) on remedy and bonding with a few modifications. Also, we have determined that the public interest does not preclude the ALJ’s recommended remedy.

A. Type of Remedy

The Commission is authorized to issue a limited exclusion order when the Commission determines that there is a violation of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337). Because we determined that Epistar’s family of MB, GB, and OMA LEDs infringe the asserted claims of the ‘718 patent, we have issued a limited exclusion

order directed to those LEDs. The sole remaining remedy issue, therefore, is whether to issue a limited exclusion order that covers downstream products.³

The ALJ recommended that, if the Commission determines there has been a violation of section 337, a limited exclusion order covering the infringing LEDs as well as packaged, infringing LEDs and boards on which the infringing LEDs are mounted is the appropriate remedy. Also, the ALJ recommended that the Commission set the bond, if necessary, at [] percent of the value of the infringing, imported LEDs or boards containing the same. RD at 3-8.

Regarding the possibility of a downstream remedy, the ALJ reasoned that an exclusion order against only Epistar LEDs might be ineffective if the LEDs could be imported as a component of other products or product components. *Id.* at 3-4.

Therefore, the ALJ reviewed the *EPROMs* factors to determine if downstream products containing the infringing LEDs should be subject to an exclusion order. *See Certain Erasable Programmable Read-Only Memories, Components Thereof, Products Containing Such Memories, and Process for Making Such Memories*, Inv. No. 337-TA-276, Commission Opinion at 125-26 (May 1989). The *EPROMs* factors include the following: 1) the value of the infringing articles relative to the value of the downstream products in which they are incorporated, 2) the identity of the manufacturer of the downstream products in which they are incorporated, *i.e.*, whether it can be determined that the downstream products are manufactured by the respondent or by a third party, 3) the incremental value to the complainant of the exclusion of the downstream products, 4)

3

Complainant did not request a cease and desist order.

the incremental detriment to respondents of exclusion of such products, 5) the burdens imposed on third parties resulting from exclusion of downstream products, 6) the availability of alternative downstream products that do not contain the infringing articles, 7) the likelihood that the downstream products actually contain the infringing articles and are thereby subject to the exclusion order, 8) the opportunity for evasion of an exclusion order that does not include downstream products, and 9) the enforceability of an order by Customs (“1st EPROMs factor, 2nd EPROMs factor, etc.”). *Id.*

From the record evidence presented, the ALJ found that individual LED chips are typically sold by manufacturers (*e.g.*, Epistar) to packagers who are located outside of the U.S. Since no domestic entities package LED chips, the ALJ determined that any Epistar chips entering the U.S. are imported in downstream products, making any exclusion order without downstream relief ineffective. *Id.* at 5. The ALJ viewed any exclusion order, especially one including downstream products, as placing a burden on Epistar and third parties that want to purchase products containing the infringing LEDs. However, the ALJ found that no evidence was presented to show that such a burden would be particularly heavy or would outweigh the necessity of including packaged LEDs and the boards on which the packaged LEDs are mounted in any limited exclusion order to provide effective relief to Philips. *Id.* at 6. Therefore, the ALJ recommended that if the Commission determines that there has been a violation of section 337, a limited exclusion order should issue covering the infringing LED devices along with the packaged LEDs and boards on which the packaged LEDs are mounted. Further, the ALJ recommended that any exclusion order include a provision that would permit importers

of packaged LEDs or boards to certify that no infringing LEDs are contained in their products.

The ALJ reasoned that any exclusion order issued in this investigation should not go further than this first level of downstream products to exclude downstream products such as traffic lights and cell phones (as Philips requested). *Id.* The ALJ noted that while a packager or board manufacturer may be able to identify the source of its LEDs, Philips had not presented sufficient evidence relating to whether further downstream importers and manufacturers could identify the sources of LEDs used in their products or how such identification data, if it existed, could be obtained by Customs. *Id.* At 5-6. Thus, the ALJ reasoned that an order excluding products such as traffic lights and cellphones would unnecessarily disrupt legitimate trade and therefore should not be issued.

Regarding bonding, the ALJ reviewed Commission precedent on how to set the amount of the bond required of respondents, pursuant to section 337(j)(3), during the 60-day period of Presidential review following the issuance of permanent relief. *Id.* at 6. Particularly, the ALJ found that the Commission has used a reasonable royalty rate to set the amount of the bond where a royalty rate had been established for the product at issue. *See Certain Integrated Circuit Telecommunication Chips and Products Containing Same, Including Dialing Apparatus*, Inv. 337-TA-337, Commission Op. at 41 (1995).

The ALJ found that there is evidence of a reasonable royalty rate based on the settlement agreement in the prior litigation involving Philips and Epistar (UEC at that time) relating to the '718 patent. *Id.* at 7. [

]. Further, the ALJ recommended that the bond should be based on the value of any infringing LEDs actually contained in a downstream product, rather than on the value of a downstream product as a whole.

As discussed in the RD and party submissions, it appears to be undisputed that the overwhelming majority of Epistar's LEDs sales are to foreign manufacturers who then incorporate the LEDs into a variety of downstream products. The first level of downstream products consists of the following: 1) infringing, packaged LEDs and 2) boards consisting primarily of an array of infringing, packaged LEDs ("LED boards"). RD at 5. The ALJ recommended exclusion of these products. However, the ALJ did not recommend the exclusion of more than the first level of downstream products since he viewed Philips' evidence as insufficient regarding whether these further downstream manufacturers can identify the sources of LEDs used in their products, and how such information, if available, could be obtained by Customs to alleviate any disruption to legitimate trade. *Id.* at 5-6.

We agree with the ALJ that Philips' evidence to support further downstream product exclusion is insufficient. Philips has shown evidence that downstream customers outside of the U.S. purchase Epistar's LEDs which are intended to be incorporated into further downstream products such as automotive lights, mobile phones, and other downstream products. Particularly, Philips submits the identities of the downstream manufacturers and their related downstream products that were provided by Epistar's responses to interrogatories, Epistar's customer lists and emails, statements from

Epistar's president, and other Epistar business materials. See Philips' br. and Philips' response br. (attachments 1-4, 16-20). However, Philips does not point to any specific evidence that downstream products containing infringing LEDs made by Epistar actually enter the U.S. Instead Philips uses words such as "may", "can" and other qualifiers indicating a lack of evidence and mere speculation concerning further downstream product importation. See Philips br. at 13-15. Thus, we apply the *EPROMs* factors only to the first level of downstream products (packaged LEDs and LED boards).

Regarding the 1st *EPROMs* factor, the critical component of packaged LEDs and LED boards is the source of the lighting - e.g., the high-brightness LEDs. Similar to the situation in *Certain Power Supply Controllers and Products Containing Same*, Inv. No. 337-TA-541, 2006 ITC Lexis 600 (Aug. 29, 2006), it is not an option to simply leave out the light source as these products could not operate as intended without them. See *Certain Power Supply Controllers*, at *8-9.

Regarding the 2nd *EPROMs* factor, Philips provides evidence regarding the identity of first level downstream manufacturers that import packaged LEDs and LED boards into the U.S. These are third-parties as the record indicates that Epistar apparently does not itself manufacture downstream products.

Regarding the 3rd *EPROMs* factor, it is apparently undisputed that most of Epistar's LEDs sales are to foreign manufacturers who use them in their downstream products, and that Epistar's LEDs are not imported into the U.S. without being first incorporated into a downstream product. See Philips br. at 14, Epistar response br. at 17. Thus, exclusion of downstream products would have a large incremental value to Philips.

Regarding the 4th *EPROMs* factor, there would be some detriment to Epistar. However, we note that only Epistar's MB, GB, and OMA family of LEDs are excluded, meaning that Epistar may still continue to sell its licensed [] LEDs to foreign manufacturers who wish to import into the U.S. In addition, a certification provision in the limited exclusion order, as discussed below, will help Customs ensure that non-infringing alternatives are not improperly excluded and will help protect both respondents and third parties.

Regarding the 5th *EPROMs* factor, the burdens imposed on third parties resulting from exclusion of downstream products will not be significant as Philips has presented sufficient direct evidence linking the specific downstream manufacturers and their related first level downstream products to actual U.S. importation. Using a certificate provision approved by Customs, we find that it is not an undue burden for third parties to make an appropriate inquiry of their suppliers and certify that, to the best of their knowledge and belief, that the first level downstream products are not excluded from entry by the exclusion order.

Regarding the 6th *EPROMs* factor, there are several alternative downstream products that do not contain the infringing articles. For instance, Epistar's [

] LEDs, which are covered by a license, can be imported under the order.

Further, as supported by Epistar's own statements, at least 90% of the U.S. market for high-brightness LEDs is provided by other manufacturers, including Philips, therefore making the supply of non-infringing alternatives very significant. See Epistar response br. at 15.

Regarding the 7th *EPROMs* factor, as noted above, Philips provides sufficient evidence that there are first level downstream products consisting of the packaged LEDs and LED boards that are imported into the U.S. that contain Epistar's infringing LEDs. Regarding the 8th *EPROMs* factor, it is not seriously disputed that there would be a significant opportunity for evasion of an exclusion order that does not exclude any downstream products. As noted by the ALJ's RD and Philips' submission, a vast majority (*e.g.*, 90%) of Epistar's LED sales are to foreign customers who produce packaged LEDs and LED boards. Therefore, any exclusion order that does not cover this first level of downstream products essentially provides no relief to Philips, as Epistar could still sell infringing LEDs to foreign entities who would export packaged LEDs and LED boards to the U.S.

Finally, regarding the 9th *EPROMs* factor, we believe the use of a certification process will greatly reduce any burden on Customs in enforcing this order.

In conclusion, the Commission has determined that the *EPROMs* factors weigh in favor of excluding first level downstream products consisting of packaged LEDs and LED boards. Regarding the 1st *EPROMs* factor, the infringing LEDs are critical to the operation of these downstream products as these products could not work without the infringing LEDs. Regarding the 2nd and 7th *EPROMs* factors, Philips has specifically identified downstream LED manufacturers that produce packaged LEDs and LED boards that are imported into the U.S. as the record indicates that Epistar does not itself manufacture downstream products. See Philips br. at 14, Epistar response br. at 17. Regarding the 3rd and 8th *EPROMs* factors, evidence has been presented that almost all of Epistar's LED sales are to foreign entities who then incorporate the infringing LEDs into

packaged LEDs and LED boards for importation into the U.S. Therefore, any remedy that does not exclude these downstream products would provide no effective relief to Philips, which makes the incremental value to Philips of excluding first level downstream products significant.

In addition, regarding the 5th and 9th *EPROMs* factors, the limited exclusion order includes the type of certification provision that can be administered by Customs. This provision is designed to ease the burden on third parties that have to comply with the order and to improve Custom's ability to properly enforce the exclusion of the specific downstream products. Also, regarding the 6th *EPROMs* factor, several alternative downstream products exist including the previously licensed [] LEDs, Philips' own supply of high-brightness LEDs, and lighting products using incandescent bulbs. The 4th *EPROMs* factor (incremental detriment to respondent) does not substantially weigh against exclusion of first level downstream products because Epistar has other markets for its LEDs and its share of the U.S. market is small.

Therefore, the Commission finds that all the *EPROMs* factors favor exclusion of first level downstream products consisting of packaged LEDs and LED boards. Accordingly, we have issued a limited exclusion order against the infringing LEDs, packaged, infringing LEDs and infringing LED boards. "LED boards" are boards consisting primarily of an array of packaged, infringing LEDs.

B. Public Interest

When issuing an exclusion order under section 337(d), the Commission must weigh the remedy sought against the effect such a remedy would have on the following public interest factors: (1) the public health and welfare; (2) the competitive conditions in

the United States economy; (3) the production of articles in the United States that are like or directly competitive with those subject to the investigation; and (4) United States consumers. *See* 19 U.S.C. § 1337(d)(1).

We agree with the IA and Philips that no public interest concerns will be raised by issuing a limited exclusion order directed to infringing LEDs produced by Epistar, and certain downstream products containing these LEDs. The IA is correct that viable non-infringing alternatives exist and there is no evidence that Philips cannot meet the demand for high-brightness LEDs. Both of these circumstances obviate any public interest concerns. Finally, protection of intellectual property rights is favored under section 337. Accordingly, the Commission has determined that the statutory public interest factors do not preclude issuance of the limited exclusion order.

C. Bonding

Section 337(j) provides for entry of infringing articles during the sixty (60) day period of Presidential review upon posting of a bond and states that the bond is to be set at a level “sufficient to protect the complainant from any injury.” 19 U.S.C. § 1337(j)(3); *see also* 19 C.F.R. § 210.50(a)(3).

The ALJ reviewed Commission precedent on how to set the amount of the bond required of respondents during the 60-day period of Presidential review following the issuance of permanent relief. *Id.* at 6; *see* section 337(j)(3). Particularly, the ALJ found that the Commission has used a reasonable royalty rate to set the amount of the bond where a royalty rate had been established for the product at issue. *See Certain Integrated Circuit Telecommunication Chips and Products Containing Same, Including Dialing Apparatus*, Inv. 337-TA-337, Commission Op. at 41 (1995).

Similarly, in this case, the ALJ found that there is evidence of a reasonable royalty rate based on the settlement agreement in the prior litigation involving Philips and Epistar (UEC at that time) relating to the '718 patent. *Id.* at 7. [

]. Further, the ALJ recommended that the bond should be based on the value of any infringing LEDs actually contained in a downstream product, rather than on the value of a downstream product as a whole.

We agree with Philips that it is not appropriate to apply directly a royalty rate pertaining to [] LEDs to Epistar's products found to infringe Philips' patents in this investigation. In his summary determination dismissing the affirmative defense that the '718 patent was invalid, the ALJ recognized that there was a significant distinction between the [] LEDs of the previous license and the reflective and transparent LEDs currently at issue. [

].

Commission precedent allows for a 100% bond when no effective alternative exists. *See Certain Flash Memory Circuits and Products Containing Same*, Inv. No. 337-TA-382, USITC Pub. No. 3046, Comm'n Op. At 26-27 (July 1997) (a 100% bond

imposed when price comparison was not practical because the parties sold products at different levels of commerce, and the proposed royalty rate appeared to be de minimis and without adequate support in the record). Here, the royalty rates proposed by the ALJ and the IA pertain to a completely different product and are not based on U.S. revenue, thereby eliminating any relevant comparison. Accordingly, the Commission has set a 100% bond for the infringing LEDs and downstream products containing the same.

By order of the Commission.

Marilyn R. Abbott
Secretary to the Commission


Issued: May 30, 2007

**CERTAIN HIGH-BRIGHTNESS LIGHT-EMITTING
DIODES AND PRODUCTS CONTAINING SAME**

337-TA-556

CERTIFICATE OF SERVICE

I Marilyn R. Abbott, hereby certify that the attached **COMMISSION OPINION ON VIOLATION, REMEDY, THE PUBLIC INTEREST, AND BONDING**, has been served on upon the Commission Investigative, Thomas S. Fusco, Esq., and all parties via first class mail and air mail where necessary on **May 31, 2007**.


Marilyn R. Abbott, Secretary
U.S. International Trade Commission
500 E Street, SW
Washington, DC 20436

ON BEHALF OF COMPLAINANT
LUMILEDS
LIGHTING U.S., LLC:

Michael J. Lyons, Esq.
Andrew J. Wu, Esq.
Mitchell M. Blakley, Esq.
Gary M. Gex, Esq.
MORGAN, LEWIS & BOCKIUS LLP
2 Palo Alto Square
3000 El Camino Real, Suite 700
Palo Alto, CA 94306
P-650-843-4000
F-650-843-4001

Daniel Johnson, Jr., Esq.
MORGAN, LEWIS & BOCKIUS LLP
One Market, Spear Street Tower
San Francisco, CA 94105-1126
P-415-442-1000
F-415-442-1001

Eric J. Maurer, Esq.
Mary Jane Boswell, Esq.
Todd P. Taylor, Esq.
Mark W. Taylor, Esq.
Jason E. Getleman, Esq.
MORGAN, LEWIS & BOCKIUS LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004
P-202-739-3000
F-202-739-3001

ON BEHALF OF RESPONDENTS
EPISTAR CORPORATION AND
UNITED EPITAXY COMPANY:

Yitai Hu, Esq.
Sean P. DeBruine, Esq.
S.H. Michael Kim, Esq.
Earl D. Brown, Esq.
Gary C. Ma, Esq.
Ming-Tao Yang, Esq.
Hsin-Yi Cindy Feng, Esq.
**AKIN GUMP STRAUSS HAUER & FELD
LLP**
2 Palo Alto Square
3000 El Camino Real, Suite 400
Palo Alto, CA 94306
P-650-838-2000
F-650-838-2001

Louis H. Iselin, Esq.
**AKIN GUMP STRAUSS HAUER & FELD
LLP**
1111 Louisiana Street
44th Floor
Houston, TX 77002-5200
P-713-220-5800
F-713-236-0822

Page 2- Certificate of Service

Colleen Coyle, Esq.

**AKIN GUMP STRAUSS HAUER & FELD
LLP**

1333 New Hampshire Avenue, NW

Washington, DC 20036-1564

P-202-887-4000

F-202-887-4288

ORIGIN ID: WASA
AMANDA BLAUROCK
US ITC/DOCKETS SERVICES
500 E STREET SW

Ship Date: 31MAY07
ActWgt: 1.0 LB MAN
System#: 264261/CAFE2331
Account: S *****

WASHINGTON, DC 20024
UNITED STATES US

TO COLLEEN COYLE, ESQ.
AKIN GUMP STRAUSS HAUER & FELD LLP
1333 NEW HAMPSHIRE AVENUE NW

(555) 555-1212

FedEx
Express

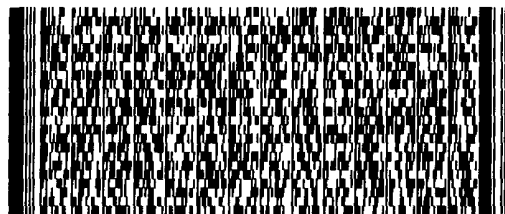
WASHINGTON, DC 200361564



CLS022307/22/23

Ref: 337-556
INV:
PO:

Dept:



Delivery Address
Barcode

BILL SENDER

STANDARD OVERNIGHT

FRI

Deliver By:
01JUN07

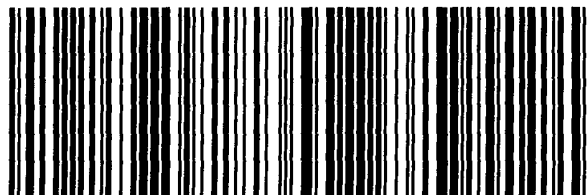
TRK# 9347 4839 3377 Form 0201

IAD A1

20036 -DC-US
ASR

19 JPNA

Part # 156148-434 NRIT 03-07



ORIGIN ID: WASA
AMANDA BLAUROCK
US ITC/DOCKETS SERVICES
500 E STREET SW

WASHINGTON, DC 20024
UNITED STATES US

Ship Date: 31MAY07
ActWgt: 1.0 LB MAN
System#: 264261/CAFE2331
Account: S *****

TO LOUIS H. ISELIN, ESQ.

(555) 555-1212

AKIN GUMP STRAUSS HAUER & FELD LLP

FedEx
Express

1111 LOUISIANA STREET

44TH FLOOR

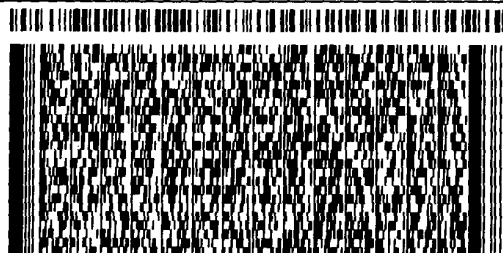
HOUSTON, TX 770025200



CLS022307/22/23

Ref: 337-556
INV:
PO:

Dept:



Delivery Address
Barcode

BILL SENDER

STANDARD OVERNIGHT

FRI

Deliver By:

TRK# 9347 4839 3366 Form 0201

01JUN07

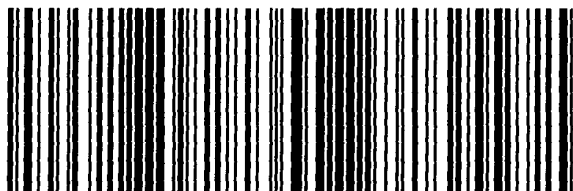
IAH

A1

77002 -TX-US
ASR

XH EIXA

Part # 156148-434 NRIT 03-07



ORIGIN ID: WASA
AMANDA BLAUROCK
US ITC/DOCKETS SERVICES
500 E STREET SW

Ship Date: 31MAY07
ActWgt: 1.0 LB MAN
System#: 264261/CAFE2331
Account: S *****

WASHINGTON, DC 20024
UNITED STATES US

TOYITAI HU, ESQ.

(555) 555-1212

AKIN GUMP STRAUSS HAUER & FELD LLP

FedEx
Express

2 PALO ALTO SQUARE

300 EL CAMINO REAL, SUITE 400

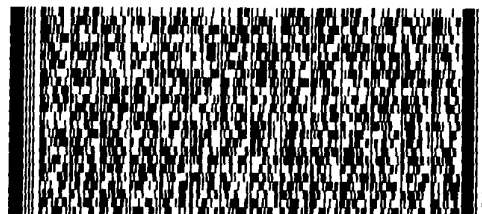
PALO ALTO, CA 94306



CLS22307/22/23

Ref: 337-556
INV:
PO:

Dept:



Delivery Address
Barcode

BILL SENDER

STANDARD OVERNIGHT

FRI

Deliver By:
01JUN07

TRK# 9347 4839 3355

Form
0201

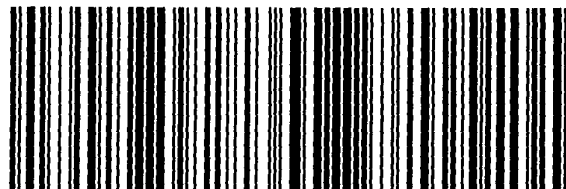
SFO

A2

94306 -CA-US
ASR

XH PAOA

Part # 156148-434 NRIT 03-07



ORIGIN ID: WASA
AMANDA BLAUROCK
US ITC/DOCKETS SERVICES
500 E STREET SW

Ship Date: 31MAY07
ActWgt: 1.0 LB MAN
System#: 264261/CAFE2331
Account: S *****

WASHINGTON, DC 20024
UNITED STATES US

TO ERIC J. MAURER, ESQ.
MORGAN, LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW

(555) 555-1212

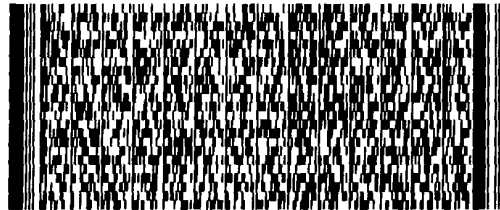
FedEx
Express



WASHINGTON, DC 20004

Ref: 337-556
INV:
PO:

Dept:



Delivery Address
Barcode

BILL SENDER

STANDARD OVERNIGHT

FRI
Deliver By:
01JUN07

TRK# 9347 4839 3344 Form 0201

IAD A1

20004 -DC-US
ASR

19 NHKA

Part # 156148-434 NRIT 03-07

